Just-in-time Learning in the Emergency Department

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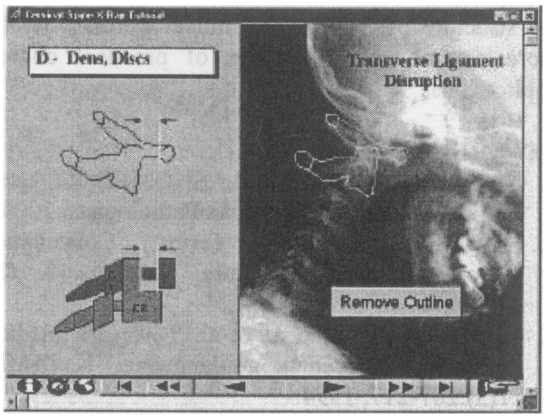
Background. The Emergency Department (ED) is a daunting environment for the medical learner. Time pressures on the attending physicians mean that the learning needs of the medical student may, quite appropriately, be given a lower priority than the clinical needs of the patients. We propose that a collection of brief focused computer tutorials presented at the time of the patient encounter can improve trainee learning.

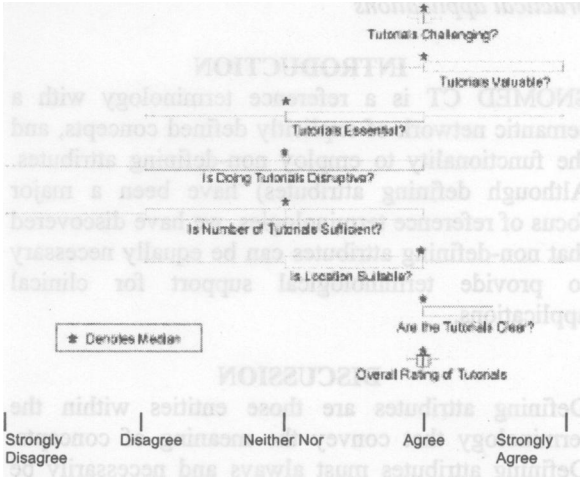
Setting: The Montreal Children's Hospital ED has a census of 85,000 visits annually. All 110 McGill University medical students spend eight 8-hour shifts during a 14-day rotation in the ED. They see patients independently before review with an attending MD.

Innovation: We created six tutorials using Toolbook Instructor 6.1 (Click2Learn Corp., Bellevue, WA) and installed them in a Pentium 100 MHz computer station in the ED. Tutorial topics were chosen to reflect common situations encountered by medical students. The tutorials varied in length from 36 – 88 screens. Preceptors were instructed to refer students to the tutorials, ideally immediately after a patient encounter relevant to an existing tutorial topic.

Evaluation: To measure students' attitudes towards the intervention, we developed a survey form based on the Students' Evaluations of Educational Quality [9] (validated for use by students evaluating college courses). It consists of eleven 5-pt Likert-type questions as well as a question asking the students to attribute their learning in the ED. By having the students complete a brief login procedure, we were able to track the time and duration of the interaction, and the titles of the screens accessed. The study period was 3.15-12.31.00. We defined completion of a tutorial as attaining the summary screen.



Results: During the study period, 73 medical students rotated through the ED; 64 completed surveys. There were 768 interactions with the computer (18/week). Medical students accounted for 536 (70%). In 327 (61%) the student completed the tutorial while in 110 (20%) they did not progress past the first 4 screens. The number of screens was negatively correlated with completion rate (corr coeff –1.07; $p<0.02$). Medical student responses to the survey questions are represented with these box-plots.



Students attributed 13% (SD± 7.5%) of their learning during the rotation to the six 10-minute tutorials compared with learning from their preceptors (33%), two 90 minute didactic sessions (16%) and their own reading (38%).

Discussion: CAI of this form might allow more effective use of the most valuable teaching resource in the ED: the attending. Instead of being burdened with aiding the student with basic fact acquisition, the staff paediatrician could instead be freed to deliver the sort of higher-level instruction that computers may never emulate.

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